In the Specification:

On page 1 before the first paragraph, please delete the following:

~~Description~~

Please replace the title as follows:

a.1 **SYSTEM AND METHOD FOR TRANSMITTING SIGNALS IN A RANDOM ACCESS CHANNEL OF A RADIO COMMUNICATION SYSTEM**

On page 1 before the first paragraph, has been amended to include the following insert:

CLAIM FOR PRIORITY

a2 This application claims priority to International Application No. PCT/DE99/03938 which was published in the German language on December 9, 1999.

a3 On page 1, between lines 5 and 6 has been amended to include the following heading:

TECHNICAL FIELD OF THE INVENTION

Please replace the paragraph beginning on line 6 of page 1 with the following rewritten paragraph:

a4 The invention relates to a method and system for transmitting signals in a communication system, and in particular, to a method and subscriber station for transmitting signals in a random access channel of a radio communication system.

On page 1, between lines 5 and 6 has been amended to include the following heading:

a5 BACKGROUND OF THE INVENTION

cont a6

On page 1, between lines 8 and 9 has been amended to include the following paragraphs:

WO 95/24102 discloses a method for prioritizing calls in a mobile radio system in which a higher transmitting power is used for calls with high prioritization than for calls with lower priority. In the case of the calls with high priority, the transmission power is in each case increased by a constant amount. In EP 0 565 507 A, access bursts are transmitted in a mobile radio system in order to minimize interference at relatively low power. If the message is not detected, it is retransmitted with an in each case increasing power level until it is finally detected.

A method is described in K. David et al.: Digitale Mobilfunksysteme [Digital Mobile Radio Systems], Teubner Verlag Stuttgart 1996.

Please replace the paragraph beginning on line 9 of page 1 with the following rewritten paragraph:

a7

In radio communication systems, messages (for example voice, picture information or other data) are transmitted via a radio interface with the aid of electromagnetic waves. The radio interface relates to a connection between a base station and subscriber stations, where the subscriber stations can be mobile stations or stationary radio stations. The electromagnetic waves are radiated by carrier frequencies which are within the frequency band provided for the respective system. For future radio communication systems, for example the UMTS (Universal Mobile Telecommunication System) or other third-generation systems, frequencies are provided in the frequency band of approx. 2000 MHz.

Please replace the paragraph beginning on line 9 of page 1 with the following rewritten paragraph:

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A random access channel (RACH) of a radio communication system is characterized by the access to this channel not being coordinated. The mobile stations of a radio cell can use this channel without prior allocation in order to request, for example, a subsequent allocation of radio resources, e.g. when setting up a connection.

Please replace the paragraph beginning on line 6 of page 2 with the following rewritten paragraph:

DE 198 17 771 discloses admitting access blocks which are orthogonal to one another in time and reducing the probability of a collision by selecting one of a number of different access blocks, i.e. of different transmitting times within the channel.

Please replace the paragraph beginning on line 11 of page 2 with the following rewritten paragraph:

ETSI SMG2 UMTS L1 Expert Group, Tdoc SMG2 UMTS-L1 455/98, October 14, 1998, discloses another possibility for improving the efficiency of the described method. In this document, it is proposed to provide an incremental increase in power. The mobile station begins with a transmitting power which is reduced with respect to the normal power setting and incrementally increases the transmitting power until reception is acknowledged by the base station.

On page 2, between lines 20 and 21 has been amended to include the following paragraphs:

SUMMARY OF THE INVENTION

In one embodiment of the invention, there is a method for transmitting signals in a random access channel in a radio communication system having first and second subscriber stations. The method includes, for example, using the random access channel in an uncoordinated manner, determining an attenuation value for a respective transmission path for each subscriber station; and carrying out a signal transmission in the channel at a transmitting power which corresponds to the previously determined attenuation value, wherein the second subscriber station carry out a signal transmission in the channel at a transmitting power which is

greater than a transmitting power corresponding to the previously determined attenuation value, so that the transmitting power is increased compared with the greater transmitting power.

In one aspect of the invention, the signal transmissions of the subscriber stations relate to certain applications, and a higher priority is allocated to the applications relating to the signal transmissions of the second subscriber stations before the signal transmission, than to the applications relating to the signal transmissions of the first subscriber stations.

In another aspect of the invention, the subscriber stations transmit signals which relate to a request for allocation of radio resources, an acknowledgement or messages for updating the location of subscriber stations.

In still another aspect of the invention, there is the signal transmission, a higher priority is allocated to the second subscriber stations compared with the first subscriber station.

Cont A11

In yet another aspect of the invention, the signal transmissions of the subscriber stations relate to certain services, and a higher priority is allocated to the services relating to the signal transmissions of the second subscriber station, before the signal transmission, than to the services relating to the signal transmissions of the first subscriber station.

In another aspect of the invention, the increase in transmitting power is changed with retransmission of the signal by the second subscriber station.

In still another aspect of the invention, the attenuation values for the transmission path are determined by evaluating the received power of a control channel.

In another aspect of the invention, the channel is a broadband channel and is arranged in accordance with a TDD or FDD mode of a UMTS mobile radio system.

In another embodiment of the invention, there is a subscriber station for a radio communication system which has a random access channel which is used in an uncoordinated manner by subscriber stations. The system includes, for example, a transmitting device to transmit signals in the random access channel, a unit to determine an attenuation value for a respective transmission path; and a control device to set transmit power for the signal

transmission to a value which is greater than a transmitting power corresponding to the previously determined attenuation value.

BRIEF DESCRIPTION OF THE DRAWINGS

Exemplary embodiments of the invention will be explained in greater detail with reference to the attached drawings, in which:

Figure 1 shows a radio communication system.

Figure 2 shows an exemplary TDD radio interface between base station and subscriber stations.

Figure 3 shows an example of the transmitting power adjustment.

Figure 4 shows a simulation result.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please replace the paragraph beginning on line 21 of page 2 with the following rewritten paragraph:

The invention discloses increasing the efficiency of the signal transmission in the random access channel.

Please replace the paragraph beginning on line 28 of page 2 with the following rewritten paragraph:

According to one embodiment of the invention, a number of subscriber stations use the random access channel in an uncoordinated manner and transmit signals with a transmitting power corresponding to predetermined attenuation values. In this rearrangement, however, the transmitting power is excessively increased for a subset of the first transmissions of the signal transmission. If there are collisions between two transmissions which now do not have the same received power at the base station, at least the more powerful signal can be utilized and the

cont a13

transmission of the weaker signal needs to be repeated when there is sufficient difference in power. On average, this reduces the delay before the transmissions are successfully received.

Please replace the paragraph beginning on line 15 of page 3 with the following rewritten paragraph:

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According to another embodiment of the invention, the transmitting power is increased for a subset of applications. These applications are prioritized with respect to the probability of immediate detection. Such prioritization can also apply to a subset of the subscriber stations or a subset of services apart from the application, e.g. as request for the allocation of radio resources, as acknowledgement or as message for updating the location of subscriber stations. This makes it possible for the operater of the radio communication system to differentiate within applications, subscriber stations or services and to charge correspondingly for higher quality.

Please replace the paragraph beginning on line 36 of page 3 with the following rewritten paragraph:

a15

According to still another embodiment of the invention, the transmitting power is excessively increased. The probability of transmissions arriving simultaneously with the same received power at the base station is further reduced. The transmission with the transmitting power with the greater excessive increase is successful. In the case of retransmissions, excessive increase is changed. This can be done in the direction of reduced or increased transmitting power. This prevents the transmissions of two subscriber stations from taking place in parallel continuously with excessively increased but equal transmitting power. The choice in method is made by the subscriber station in an arbitrary manner, that is to say in a manner which is not necessarily the same for all subscriber stations.

Please replace the paragraph beginning on line 16 of page 4 with the following rewritten paragraph:

In one aspect of the invention, the utilization of a resource unit of the radio resources in radio communication systems has broadband channels, since the smallest resource unit is relatively large. The channels are organized in accordance with a TDD or FDD mode of a UMTS mobile radio system.

Please delete lines 23-32 of page 4.

Please replace the paragraph beginning on line 33 of page 4 with the following rewritten paragraph:

The mobile radio system shown in figure 1, as an example of a radio communication system, includes a multiplicity of mobile switching centers MSC which are networked together and, respectively, represent the access to a landline network PSTN. Furthermore, these mobile switching centers MSC are connected to, in each case, at least one device RNC for controlling the base stations BS and for allocating radio resources, i.e. a radio resource manager. Each of these devices RNC, in turn, provides for a connection to at least one base station BS. Such a base station BS can set up a connection to a subscriber station, e.g. mobile stations MS or other types of mobile and stationary terminals, via a radio interface. Each base station BS forms at least one radio cell.

Please replace the paragraph beginning on line 9 of page 6 with the following rewritten paragraph:

Figure 1 shows by way of example connections V1, V2, V3 for transmitting user information ni and signaling information as point-to-point connections between mobile stations MS and a base station BS and a control channel BCCH as point-to-multipoint connection. In the control channel BCCH, control information oi is transmitted by the base station BS at a known constant transmitting power. This information can be utilized by subscriber stations MS and can include information on the services offered in the radio cell and on the configuration of the

channels of the radio interface. In the uplink UL, a random access channel RACH is offered to the subscriber stations MS.

Please replace the paragraph beginning on line 32 of page 7 with the following rewritten paragraph:

Although the mobile stations MS use the random access channel RACH in an uncoordinated manner, they do so with regulated transmitting power. For this purpose, attenuation values (path loss) are initially determined by measurements. The attenuation values can be advantageously determined by evaluation of the received power of the control channel BCCH, see figure 3. The control channel BCCH is continuously accessible and transmits at a known transmitting power. From the measured received power at the mobile station MS, a control device in the mobile station MS can calculate the transmitting power of a transmitting device of the mobile station MS which is necessary for a particular received power at the base station BS and which guarantees compensation for the loss. The lower the received power at the mobile station MS, the greater the transmitting power which must be set in the uplink UL.

Please replace the paragraph beginning on line 13 of page 8 with the following rewritten paragraph:

However, not all the mobile stations MS are necessarily transmitting, and not all are necessarily transmitting continuously at this calculated transmitting power. However, a subset of the applications, mobile stations MS or services (e.g. by the quality of service QoS) are prioritized so that an excessive transmitting power can also be used in the first transmission. In figure 3, mobile station MS2 is prioritized. This excessive increase also leads to an increased received power in the RACH channel at the base station BS. It is also within the scope of the invention that, in general, the level of the transmitting power of the initial transmission is lowered down to the subset.